

**Final  
Site-Specific Safety and Health Plan Attachment  
Range 24 Upper, Parcel 80Q**

**Fort McClellan  
Calhoun County, Alabama  
EPA ID No. AL7 210 020 562**

**Prepared for:**

**U.S. Army Corps of Engineers, Mobile District  
109 St. Joseph Street,  
Mobile, Alabama 36602**

**Prepared by:**

**IT Corporation  
312 Directors Drive  
Knoxville, Tennessee 37923**

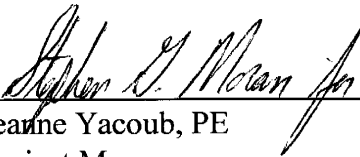
**Task Order CK10  
Contract No. DACA21-96-D-0018  
IT Project No. 796887**

**June 2001**

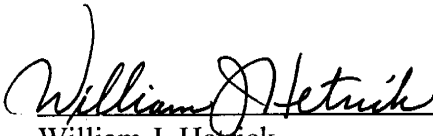
This Site-Specific Safety and Health Plan must be used in conjunction with the Installation-Wide Safety and Health Plan, Fort McClellan, Alabama.

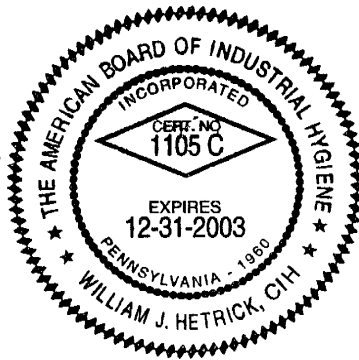
## Site-Specific Safety and Health Plan Attachment Approval Fort McClellan, Calhoun County, Alabama

I have read and approve this site-specific safety and health plan attachment for the Site Investigation at Range 24 Upper, Parcel 80Q, Fort McClellan, Alabama, with respect to project hazards, regulatory requirements, and IT Corporation procedures.


  
Jeanne Yacoub, PE  
Project Manager

06/06/01  
Date

  
William J. Hetrick  
Health & Safety Manager



5/23/01  
Date

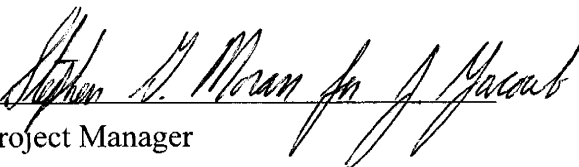
  
Jeff Tarr  
Site Coordinator

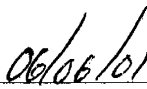
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## **Acknowledgements**

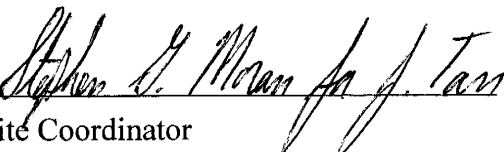
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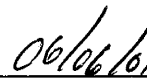
The approved version of this site-specific safety and health plan (SSHP) attachment for the Site Investigation at Range 24 Upper, Parcel 80Q, Fort McClellan, Alabama, has been provided to the site coordinator. I acknowledge my responsibility to provide the site coordinator with the equipment, materials, and qualified personnel to implement fully all safety requirements in this SSHP attachment. I will formally review this plan with the health and safety staff every 6 months until project completion.

  
Project Manager

  
Date

I acknowledge receipt of this SSHP attachment from the project manager, and that it is my responsibility to explain its contents to all site personnel and cause these requirements to be fully implemented. Any change in conditions, scope of work, or other change that might affect worker safety requires me to notify the project manager and the health and safety manager.

  
Site Coordinator

  
Date

## Site-Specific Safety and Health Plan Acknowledgement Form

I have been informed of, and will abide by the procedures set forth in this site-specific safety and health plan attachment for work activities on Site Investigation at Range 24 Upper, Parcel 80Q Fort McClellan, Alabama.

**Printed Name**

**Signature**

## Representing

**Date**This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

## Fort McClellan Gate Hours

Baltzell Gate	Baltzell Road. Open 24 hours daily, 7 days a week.
Galloway Gate	Galloway Road Open 6:00 a.m. – 6:00 p.m., Monday-Friday.

## Fort McClellan Project Emergency Contacts

Range Control Office (Main Post).....(256) 848-6772  
Fire Department (on post).....911  
Fire Department (off post) .....(256) 237-3541  
Ambulance (off post) .....911  
Regional Medical Center .....(256) 235-5121  
Military Police (SSG Busch) ..... (256) 848-5680, 848-4824  
DOD Guard Force (Mr. Bolton) ..... (256) 848-5680, 848-4732  
Anniston Police Department .....(256) 238-1800  
Chemical Agent Emergencies.....(256) 895-1598  
    (Jimmy Walker, CEHNC)..... cell phone (256) 759-3931  
UXO Emergencies .....(256) 895-1598  
    (Jimmy Walker, CEHNC)..... cell phone (256) 759-3931  
UXO Nonemergencies/Reporting Only (Ronald Levy) .....(256) 848-3758  
Baltzell Gate Guard Shack..... (256) 848-5693, 848-3821  
National Response Center & Terrorist Hotline.....(800) 424-8802  
Poison Control Center.....(800) 462-0800  
EPA Region IV .....(404) 562-8725  
Ronald Levy, Chief, FTMC Environmental Management .....(256) 848-3758  
Ellis Pope, U.S. Army Corps of Engineers.....(334) 690-3077  
Jeanne Yacoub, IT Project Manager .....(770) 663-1429  
Bill Hetrick, IT H&S Manager .....(865) 690-3211, pager (888) 655-9529  
Mike Moore, Fort McClellan Safety Office.....(256) 848-5433  
Sergeant Tim Lane, National Guard Security Operations .....(256) 848-6176  
Dr. Jerry H. Berke, Health Resources Occupational Physician .....(800) 350-4511

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## ***List of Acronyms***

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See Attachment 1, List of Abbreviations and Acronyms, of the Site-Specific Field Sampling Plan Attachment contained in this binder.

## **1.0 Site Work Plan Summary**

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**Project Objective.** The objective of this Site Investigation at Range 24 Upper, Parcel 80Q, (FTMC), Calhoun County, Alabama is to collect nine surface soil samples, nine subsurface soil samples, four groundwater samples, three surface water and three sediment samples. These samples will be collected and analyzed to provide data for characterizing the site to determine the environmental conditions and determine if any further action to be conducted at the site. Additionally, samples will be collected from environmental media in locations that will assist in the assessment of potential ecological impacts resulting from previous activities at the site.

### **Project Tasks**

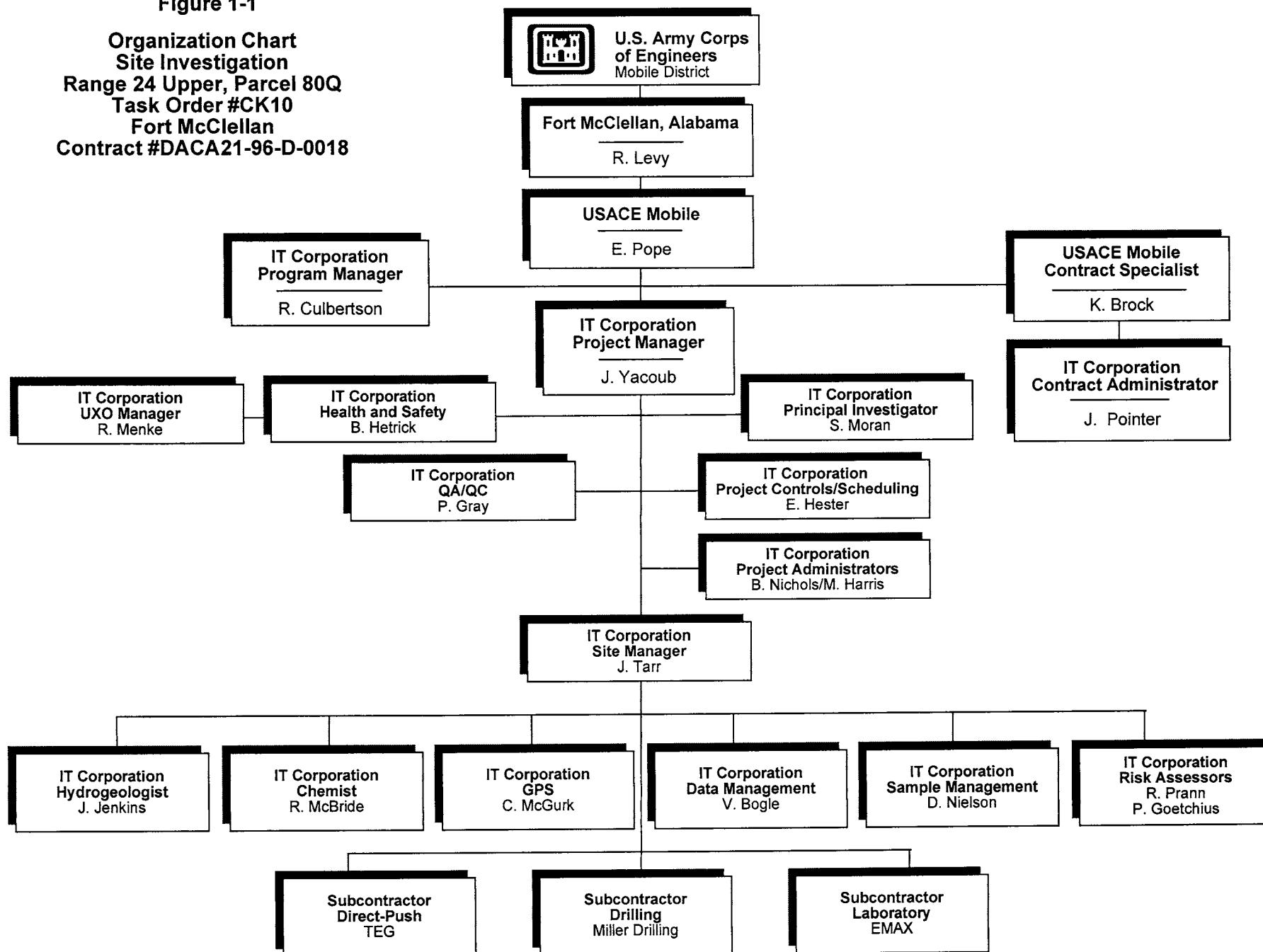
- Surface and downhole UXO survey
- Utility clearances
- Surface and subsurface soil sampling
- Surface water and sediment sampling
- Installation of permanent residuum monitoring wells
- Groundwater sampling
- Surveying

**Personnel Requirements.** Up to 10 employees. See Figure 1-1 for an organization chart.

Note: All personnel on this site shall have received training, informational programs, and medical surveillance as outlined in the installation-wide safety and health plan (SHP) for site investigations at FTMC, and be familiar with the requirements of this site-specific SHP (SSHP).

This SSHP must be used in conjunction with the SHP, FTMC, Alabama.

**Figure 1-1**  
**Organization Chart**  
**Site Investigation**  
**Range 24 Upper, Parcel 80Q**  
**Task Order #CK10**  
**Fort McClellan**  
**Contract #DACA21-96-D-0018**



## **2.0 Site Characterization and Analysis**

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### **2.1 Anticipated Hazards**

The activity hazard analysis in Chapter 5.0 contains project-specific practices utilized to reduce or eliminate anticipated site hazards. The activity hazard analysis indicates specific chemical and physical hazards that may be present and encountered during each task from on-site operations. Below each task is a list of hazards and specific actions that will be taken to control the respective hazards. These control measures may include work practice controls, engineering controls, and/or use of appropriate personal protective equipment (PPE). Site control with the use of specific work zones (support zone, contamination reduction zone, and exclusion zone) is addressed in Chapter 7.0 of Appendix A of the IT Corporation (IT), August 2000, *Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama*.

The Range 24 Upper, Parcel 80Q, is located in the east central area of the Main Post and was constructed between 1983 and 1989 (the range was inactivated in 1990). Weapons fired at this range consisted of M-16 rifles with tracer and flares. Range activities occurred only in 1989 and 1990. Defensive techniques were also practiced at the range.

Plate 5 of the U.S. Army Corps of Engineers July 1999 *Archives Search Report, Maps, Fort McClellan, Anniston, Alabama* shows an 81 millimeter mortar range fan, listed as old Range 28, covering the area of Range 24 Upper, Parcel 80Q. This mortar range appears to have the firing line just south of Bains Gap Road. The impact area appears to be due south toward Reeves Hill. The southern end of the mortar range fan covers part of the Artillery and Mortar Impact Areas, Parcels 138Q-X, 141Q-X, and 142Q-X that are being investigated under a separate site investigation and is not part of this investigation.

Potential contaminate sources at the Range 24 Upper, Parcel 80Q, are primarily unknown, but likely include nitroexplosives and lead.

The Range 24 Upper, Parcel 80Q falls within the “Possible Explosive Ordnance Impact Area” shown on Plate 10 of the *Archives Search Report, Maps, Fort McClellan, Anniston, Alabama*. Therefore, IT will conduct UXO avoidance activities including surface sweeps and downhole surveys of soil borings.

**Table 2-1**

**Toxicological Properties of Chemicals  
Range 24 Upper, Parcel 80Q  
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 4)

Substance [CAS]	IP <sup>a</sup> (eV)	Odor Threshold (ppm)	Route <sup>b</sup>	Symptoms of Exposure	Treatment	TWA <sup>c</sup>	STEL <sup>d</sup>	Source <sup>e</sup>	IDLH (NIOSH) <sup>f</sup>
Acetone [67-64-1]	9.7	13-100	Inh Ing Con	Irritated eyes, nose, and throat; headache, dizziness; dermatitis.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	1000 ppm 500 ppm 250 ppm	750 ppm	PEL TLV REL	2500 ppm (10% of LEL)
Fuel oil (diesel oil, medium)	?	?	Ing Inh Con	Ingestion causes nausea, vomiting, and cramps; depressed central nervous system, headache, coma, death; pulmonary irritation; kidney and liver damage; aspiration causes severe lung irritation, coughing, gagging, dyspnea, substernal stress, pulmonary edema; bronchopneumonia; excited, then depressed, central nervous system.	Eye: Irrigate promptly Skin: Soap wash Breath: Respiratory support Swallow: Immediate medical attention Aspiration: Immediate medical attention	100 mg/m3 * 100 mg/m3 **  * Skin ** Kerosene only		PEL TLV REL	

**Table 2-1**

**Toxicological Properties of Chemicals  
Range 24 Upper, Parcel 80Q  
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 4)

Substance [CAS]	IP <sup>a</sup> (eV)	Odor Threshold (ppm)	Route <sup>b</sup>	Symptoms of Exposure	Treatment	TWA <sup>c</sup>	STEL <sup>d</sup>	Source <sup>e</sup>	IDLH (NIOSH) <sup>f</sup>
Gasoline [8006-61-9]	?	0.3	Inh Ing Con	Intoxication, headaches, blurred vision, dizziness, nausea; eye, nose throat irritation; potential kidney and other cancers. Carcinogenic.	Eye: Irrigate immediately (15 min) Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention	300 ppm Ca, lowest feasible conc. (LOQ 15 ppm)	500 ppm	PEL TLV REL	1400 ppm  10% of LEL
n-Hexane [110-54-3]	10.18	65-248	Inh Ing Con	Lightheadedness; nausea, headache; numbness of the extremities, muscular weakness; irritation of the eyes and nose; dermatitis; chemical pneumonia; giddiness.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	500 ppm 50 ppm (skin) 50 ppm		PEL TLV REL	1100 ppm  10% of LEL
Isopropyl alcohol (isopropanol) [67-63-0]	10.16	43-200	Inh Ing Con	Mild irritation of the eyes, nose, and throat; drowsiness, dizziness, headache; dry, cracked skin.	Eye: Irrigate immediately Skin: Water flush Breath: Respiratory support Swallow: Immediate medical attention	400 ppm 400 ppm 400 ppm	500 ppm 500 ppm	PEL TLV REL	2,000 ppm  10% of LEL
Motor Oil [NA]	?	?	Inh Ing	Irritated eyes, skin, respiratory system; usually only a problem if misted or ingested.	Eye: Irrigate immediately (15 min) Skin: Soap wash immediately Swallow: Immediate medical attention			PEL TLV REL	
Nitric acid [7697-37-2]	11.95	0.3-1	Inh Ing Con	Irritated eyes, mucous membranes, and skin; delayed pulmonary edema, pneumonitis, bronchitis; dental erosion.	Eye: Irrigate immediately Skin: Water flush promptly Breath: Respiratory support Swallow: Immediate medical attention	2 ppm 2 ppm 2 ppm	4 ppm 4 ppm 4 ppm	PEL TLV REL	25 ppm

Table 2-1

**Toxicological Properties of Chemicals  
Range 24 Upper, Parcel 80Q  
Fort McClellan, Calhoun County, Alabama**

(Page 3 of 4)

Substance [CAS]	IP <sup>a</sup> (eV)	Odor Threshold (ppm)	Route <sup>b</sup>	Symptoms of Exposure	Treatment	TWA <sup>c</sup>	STEL <sup>d</sup>	Source <sup>e</sup>	IDLH (NIOSH) <sup>f</sup>
Portland cement			Inh	Fine gray powder that can be irritating if inhaled or in eyes.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	15 mg/m <sup>3</sup> * 5 mg/m <sup>3</sup> ** 10 mg/m <sup>3</sup> * Total Dust ** Respirable Dust		PEL TLV REL	5000 mg/m <sup>3</sup>
Sodium hydroxide [1310-73-2]	NA	NA	Inh Ing Con	Irritated nose; pneumonitis; burns eyes, and skin; temporary loss of hair.	Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention	2 mg/m <sup>3</sup>	C 2 mg/m <sup>3</sup> C 2 mg/m <sup>3</sup>	PEL TLV REL	10 mg/m <sup>3</sup>
Sulfuric acid [7664-93-9]	?	0.15	Inh Ing Con	Irritated eyes, nose, and throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatitis; dental erosion; tracheobronchitis; skin and eye burns; dermatitis.	Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention	1 mg/m <sup>3</sup> 1 mg/m <sup>3</sup> 1 mg/m <sup>3</sup>	3 mg/m <sup>3</sup>	PEL TLV REL	15 mg/m <sup>3</sup>

<sup>a</sup>IP = Ionization potential (electron volts).<sup>b</sup>Route = Inh, Inhalation; Abs, Skin absorption; Ing, Ingestion; Con, Skin and/or eye contact.<sup>c</sup>TWA = Time-weighted average. The TWA concentration for a normal work day (usually 8 or 10 hours) and a 40-hour work week, to which nearly all workers may be repeatedly exposed, day after day without adverse effect.<sup>d</sup>STEL = Short-term exposure limit. A 15-minute TWA exposure that should not be exceeded at any time during a workday, even if the TWA is not exceeded.<sup>e</sup>PEL = Occupational Safety and Health Administration (OSHA) permissible exposure limit (29 CFR 1910.1000, Table Z).

AEL = Airborne Exposure Limit.

TLV = American Conference of Governmental Industrial Hygiene (ACGIH) threshold limit value—TWA.

REL = National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit.

<sup>f</sup>IDLH (NIOSH)—Immediately dangerous to life or health (NIOSH). Represents the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.

NE = No evidence could be found for the existence of an IDLH (NIOSH Pocket Guide to Chemical Hazards, Pub. 1998).

C = Ceiling limit value which should not be exceeded at any time.

Ca = Carcinogen.

NA = Not applicable.

? = Unknown.

## Table 2-1

### Toxicological Properties of Chemicals Range 24 Upper, Parcel 80Q Fort McClellan, Calhoun County, Alabama

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LEL = Lower explosive limits.

LC<sub>50</sub> = Lethal concentration for 50 percent of population tested.

LD<sub>50</sub> = Lethal dose for 50 percent of population tested.

NIC = Notice of intended change (ACGIH).

#### References:

- American Conference of Governmental Industrial Hygienists Guide to Occupational Exposure Values, 1998, compiled by the American Conference of Governmental Industrial Hygienists.
- Amoore, J. E. Hautula, "Odor as an Aid to Chemical Safety," Journal of Applied Toxicology, 1983.
- Clayton, George D., Clayton, F. E., Patty's Industrial Hygiene and Toxicology, 3rd ed., John Wiley & Sons, New York.
- Documentation of TLVs and BEIs, American Conference of Governmental Industrial Hygienists, 6th ed., 1998.
- Fazzuluri, F. A., Compilation of Odor and Taste Threshold Values Data, American Society for Testing and Materials, 1978.
- Gemet, L. J. Van, Compilation of Odor Threshold Values in Air and Water, CIVO, Netherlands, 1977.
- Gemet, L. J. Van, Compilation of Odor Threshold Values in Air and Water, Supplement IV, CIVO, Netherlands, 1977.
- Lewis, Richard J., Sr., 1992, Sax's Dangerous Properties of Industrial Materials, 8th ed., Van Nostrand Reinhold, New York.
- Micromedex Tomes Plus (R) System, 1992, Micromedex, Inc.
- National Institute for Occupational Safety and Health Pocket Guide to Chemicals, Pub. 1998, National Institute for Occupational Safety and Health.
- Odor Threshold for Chemicals with Established Occupational Health Standards, American Industrial Hygiene Association, 1989.
- Respirator Selection Guide, 3M Occupational Health and Safety Division, 1993.
- Verschueren, K., Handbook of Environmental Data on Organic Chemicals, Van Nostrand and Reinhold, 1977.
- Warning Properties of Industrial Chemicals—Occupational Health Resource Center, Oregon Lung Association.
- Workplace Environmental Exposure Levels, American Industrial Hygiene Association, 1992.



Procedures contained in the Site Specific UXO Safety Plan shall be followed for all site activities associated with this investigation.

Table 2-1 contains the toxicological properties of chemicals anticipated or to be used at the Range 24 Upper, Parcel 80Q, Fort McClellan, Alabama.

## **2.2 General Site Information**

**Location of Site.** Fort McClellan (FTMC) is located in the foothills of the Appalachian Mountains of northeastern Alabama near the cities of Anniston and Weaver in Calhoun County. FTMC is approximately 60 miles northeast of Birmingham, 75 miles northwest of Auburn and 95 miles west of Atlanta, Georgia. FTMC consists of three main areas of government-owned and leased properties: Main Post, Pelham Range and Choccolocco Corridor (lease terminated in May 1998). The Range 24 Upper, Parcel 80Q, is located in the east-central area of the Main Post and was constructed between 1983 and 1989.

**Duration of Planned Employee Activity.** Employee activity duration is anticipated to be less than one month.

**Site Topography and Size.** The soils at the Range 24 Upper, Parcel 80Q, consist of two soil series; one for each of the northern and southern halves of the site. The two series are Stony rough land, sandstone series and Jefferson gravelly fine sandy loam, 6 to 10 percent slopes, eroded.

Soils in the northern half of Range 24 Upper, Parcel 80Q, fall into the Stony rough land sandstone series. This soil series is the soils of the higher elevations of the Choccolocco Mountains. These soils are generally found in rough mountainous areas with many outcrops of sand and quartzite bedrock, loose rock fragments and scattered patches of sandy soil material. Elevations of the higher parts of the mountain range from 1025 to 1050 feet. Slopes are generally more than 25 percent.

The southern half of Range 24 Upper, Parcel 80Q fall into the Jefferson gravelly fine sandy loam, 6 to 10 percent slopes, eroded. The surface soil is dark grayish-brown fine sandy loam and the subsoil is yellowish-brown, light fine sandy clay. Fragments of sandstone and quartzite, as

much as eight inches in diameter are on the surface and throughout the profile. Elevations in the southern half of Range 24 Upper, Parcel 80Q are from 975 to 1025 feet.

***Pathways for Hazardous Substance Dispersion.*** Possible pathways for hazardous substances in the area are soils and groundwater.

### 3.0 Personal Protective Equipment

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The work activities will begin in the following levels of protection. Also, a completed description of Level D, Modified Level D, and Level C PPE is provided.

Task	Initial Level of PPE
Initial UXO avoidance sweep and equipment staging	Level D
Utility clearance	Level D
Surface water and surface soil sampling	Level D
Subsurface soil and groundwater sampling (direct-push methodology)	Modified Level D*
Monitoring well installation	Modified Level D*
Surveying	Level D

\*Initial level will be raised to Level C or higher if air monitoring results in the breathing zone (BZ) are greater than action levels.

**Level D.** The minimal level of protection that will be required of IT personnel at the site will be Level D. The following equipment will be used for Level D protection:

- Coveralls or work clothing
- Leather work gloves (when necessary)
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

**Modified Level D.** The following equipment will be used for Level D-Modified protection:

- Permeable Tyvek, Kleenguard, or its equivalent (Saran-coated tyvek where chemical agents are anticipated)

- Latex boot covers
- Nitrile, heavy work, or latex gloves
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

Note: In addition to Modified Level D PPE, the operator of high-pressure water jetting equipment shall wear metatarsal guards for the legs and feet and a face shield.

**Level C.** Level C protection will not be used unless air-monitoring data indicate the need for upgrade; however, the equipment shall be readily available on site. The following equipment will be used for Level C protection:

- National Institute of Occupational Safety and Health/Mine Safety and Health Administration-approved full-face, air-purifying respirators equipped with organic vapor/acid gas cartridge in combination with high-efficiency particulate air filter
- Hooded, Saran-coated Tyvek, taped at gloves, boots, and respirator
- Nitrile gloves (outer)
- Latex or lightweight nitrile gloves (inner)
- Neoprene steel-toed boots or polyvinyl chloride overbooties/steel-toed safety boots
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

Note: In addition to Level C PPE, the operator of high-pressure water jetting equipment shall wear metatarsal guards for the legs and feet and a face shield.

## 4.0 Site Monitoring

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The environmental contaminants of concern resulting from activities at the Range 24 Upper, Parcel 80Q are primarily unknown but based on land use history probably include nitroexplosives, lead and white phosphorus.

Table 4-1 contains action levels for site monitoring at the Range 24 Upper, Parcel 80Q.

**Chemical.** The site safety and health officer shall perform air monitoring during the performance of ground intrusive operations. A calibrated photo ionization detector (i.e., Hnu DL-101 or equivalent) organic vapor analyzer will be utilized to monitor the sampling locations and BZs to determine if any organic material may be present that would necessitate upgrading of the protection level. A calibrated combustible gas/oxygen indicator will be utilized to monitor the borehole, work areas and BZs to determine if any combustible/flammable levels may be present that would necessitate evacuation of the work area. Table 4-2 contains the air monitoring frequency and location for site monitoring at the Range 24 Upper, Parcel 80Q.

**Unexploded Ordinance.** UXO support for sampling activities are specified in the site-specific UXO safety plan developed for the Range 24 Upper, Parcel 80Q. The UXO specialists will perform UXO avoidance sweeps prior to moving the heavy equipment onto the site. During this operation, UXO on the surface will be detected and marked for avoidance during field operations. Additionally, downhole magnetometer surveys will be performed to detect metal objects in the path of the boring apparatus. The boring location will be moved to avoid subsurface metal objects.

If UXO is encountered, personnel will contact the site manager, UXO specialist, and the site safety and health officer immediately. Personnel will evacuate the immediate area and secure it.

**Table 4-1**

**Action Levels**  
**Site Investigation**  
**Range 24 Upper, Parcel 80Q**  
**Fort McClellan, Calhoun County, Alabama**

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When in Level C PPE

Analyte	Action Level	Required Action <sup>a</sup>
VOCs (volatile organic compound)	$\geq 10$ ppm above background in breathing zone (BZ)	Stop work, evacuate work area, upgrade to Level B; Notify CIH
Oxygen	$\geq 20\%$ , $\leq 23\%$ $< 20\%$ , $> 23\%$	Normal operations. Stop work, evacuate work area; Notify CIH
Flammable vapors	$\geq 10\%$ LEL $< 10\%$ LEL	Stop work, evacuate work area. Continue operations, monitor for VOCs; Notify CIH

When in Level D Modified/D PPE

Analyte	Action Level	Required Action <sup>b</sup>
VOCs	$\geq 1$ ppm above background in BZ	Stop activities, suspend work activities for 15 to 30 minutes, if readings are sustained then upgrade to Level C PPE; Notify CIH
Oxygen	$\geq 20\%$ , $\leq 23\%$ $< 20\%$ , $> 23\%$	Normal operations. Stop work, evacuate work area.
Flammable vapors	$\geq 10\%$ LEL $< 10\%$ LEL	Stop work, evacuate work area. Continue operations, monitor for VOCs.

**Table 4-1**  
**Action Levels**  
**Site Investigation**  
**Range 24 Upper, Parcel 80Q**  
**Fort McClellan, Calhoun County, Alabama**

(Page 2 of 2)

When in Support Zone

Analyte	Action Level	Required Action
VOCs	$\geq 1$ ppm above background in BZ	Evacuate support zone and re-establish perimeter of exclusion zone.

<sup>a</sup> Four instantaneous peaks in any 15-minute period or a sustained reading for 5 minutes in excess of the action level will trigger a response.

<sup>b</sup> Contact with the H&S manager must be made prior to continuance of work. The H&S manager may then initiate perimeter/integrated air sampling along with additional engineering controls.

**No one is permitted to downgrade levels of PPE without authorization from the H&S manager.**

**Table 4-2**

**Air Monitoring Frequency and Location  
Range 24 Upper, Parcel 80Q  
Fort McClellan, Calhoun County, Alabama**

Work Activity	Instrument	Frequency	Location
Staging equipment	OV Monitor	Initially for area	Breathing zone (BZ) of employees
Sampling (groundwater and subsurface soil)	OV Monitor LEL/O <sub>2</sub> Monitor	Continuously Continuously	BZ of employees Support zone
Installing monitoring wells	OV Monitor LEL/O <sub>2</sub> Monitor	Continuously Continuously	BZ of employees BZ of employees

OV = Organic vapor.

LEL/O<sub>2</sub> = Lower explosive level/oxygen.



## **5.0 Activity Hazard Analysis**

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The attached activity hazard analysis (Table 5-1) is provided for the following activities:

- Initial UXO avoidance sweep and equipment staging
- Installation of monitoring wells
- Subsurface soil, groundwater, surface water and sediment sampling
- Surveying
- Moving and shipping collected samples
- Disposal of investigative derived waste (forklift operations)
- High-pressure water jetting operations.

All injuries and illnesses must be immediately reported to the site manager or the site safety and health officer, who will then notify off-site personnel and organizations as necessary.

If hospital care must be provided, the victim shall be treated at Northeast Regional Medical Center. Directions to the hospital are provided in Figure 5-1.

**Table 5-1**

**Activity Hazard Analysis**  
**Range 24 Upper, Parcel 80Q**  
**Fort McClellan, Calhoun County, Alabama**

(Page 1 of 13)

Activity	Potential Hazards	Recommended Controls
Initial UXO avoidance sweep and equipment staging	Slip, trip, and fall hazards	<ul style="list-style-type: none"> <li>Determine best access route before transporting equipment.</li> <li>Practice good housekeeping; keep work area picked up and clean as feasible.</li> <li>Continually inspect the work area for slip, trip, and fall hazards.</li> <li>Look before you step; ensure safe and secure footing.</li> </ul>
	Heavy lifting	<ul style="list-style-type: none"> <li>Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment.</li> </ul>
	Falling objects	<ul style="list-style-type: none"> <li>Stay alert and clear of materials suspended overhead; wear hard hat and steel-toed boots.</li> </ul>
	Flying debris, dirt, dust, etc.	<ul style="list-style-type: none"> <li>Wear safety glasses/goggles; ensure that eye wash is in proper working condition.</li> </ul>
	Pinch points	<ul style="list-style-type: none"> <li>Keep hands, fingers, and feet clear of moving/suspended materials and equipment.</li> <li>Beware of contact points.</li> <li>Stay alert at all times!</li> </ul>
	Cuts/bruises	<ul style="list-style-type: none"> <li>Use cotton or leather work gloves for material handling.</li> </ul>
	Bees, spiders, and snakes	<ul style="list-style-type: none"> <li>Inspect work area carefully and avoid placing hands and feet into concealed areas.</li> </ul>
	Ticks	<ul style="list-style-type: none"> <li>Wear light colored clothing (can see ticks better).</li> <li>Mow vegetated and small brush areas.</li> <li>Wear insect repellent.</li> <li>Wear long sleeves and long pants.</li> <li>Visually check oneself promptly and frequently after exiting the work area.</li> </ul>
	Fire	<ul style="list-style-type: none"> <li>Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.</li> </ul>
	Hazard communication	<ul style="list-style-type: none"> <li>Label all containers as to contents and dispose of properly.</li> <li>Ensure Material Safety Data Sheets (MSDS) are available for hazardous chemicals used on site.</li> </ul>

**Table 5-1**

**Activity Hazard Analysis  
Range 24 Upper, Parcel 80Q  
Fort McClellan, Calhoun County, Alabama**

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Activity	Potential Hazards	Recommended Controls
Initial UXO avoidance sweep and equipment staging (continued)	Noise	<ul style="list-style-type: none"><li>• Sound levels above 85 decibels (dBA) mandates hearing protection.</li></ul>
	Lighting	<ul style="list-style-type: none"><li>• Adequate lighting will be provided to ensure a safe working environment.</li></ul>
	Cold stress	<ul style="list-style-type: none"><li>• Workers should wear insulated clothing when temperatures drop below 40 degrees Fahrenheit (°F).</li><li>• Drink warm beverages on breaks. Refrain from drinking caffeinated beverages.</li><li>• Remove wet clothing promptly.</li><li>• Take breaks in warm areas.</li><li>• Reduce work periods as necessary.</li><li>• Layer work clothing.</li></ul>
	Poison ivy/oak/sumac	<ul style="list-style-type: none"><li>• Avoid plant areas if possible.</li><li>• Wear long sleeves and long pants.</li><li>• Promptly wash clothing that has contacted poisonous plants.</li><li>• Wash affected areas immediately with soap and water.</li></ul>
	Heat rash	<ul style="list-style-type: none"><li>• Keep the skin clean and dry.</li><li>• Change perspiration-soaked clothing, as necessary.</li><li>• Bathe at end of work shift or day.</li><li>• Apply powder to affected area.</li></ul>
	Heat cramps	<ul style="list-style-type: none"><li>• Drink plenty of cool fluids even when not thirsty.</li><li>• Provide cool fluid for work crews.</li><li>• Move victim to shaded, cool area.</li></ul>
	Heat exhaustion	<ul style="list-style-type: none"><li>• Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature).</li><li>• Set up work/rest periods.</li><li>• Use the "buddy system."</li><li>• Allow workers time to acclimate.</li><li>• Have ice packs available for use.</li><li>• Take frequent breaks.</li></ul>

**Table 5-1**

**Activity Hazard Analysis  
Range 24 Upper, Parcel 80Q  
Fort McClellan, Calhoun County, Alabama**

(Page 3 of 13)

Activity	Potential Hazards	Recommended Controls
Initial UXO avoidance sweep and equipment staging (continued)	Heat stroke	<ul style="list-style-type: none"><li>• Evaluate possibility of night work.</li><li>• Perform physiological monitoring on workers during breaks.</li><li>• Wear body cooling devices.</li></ul>
	Contact with moving equipment/vehicles	<ul style="list-style-type: none"><li>• Work area will be barricaded/demarcated.</li><li>• Equipment will be laid out in an area free of traffic flow.</li><li>• Barricades shall be used on or around work areas when it is necessary to prevent the inadvertent intrusion of pedestrian traffic.</li><li>• Barriers shall be used to protect workers from vehicular traffic.</li><li>• Barriers shall be used to guard excavations adjacent to streets or roadways.</li><li>• Flagging shall be used for the short term (less than 24 hours) to identify hazards until proper barricades or barriers are provided.</li><li>• Heavy equipment shall have backup alarms.</li></ul>
	Forklift operations	<ul style="list-style-type: none"><li>• Use qualified and trained forklift operators.</li><li>• The operator shall not exceed the load capacity rating for the forklift.</li><li>• The load capacity shall be clearly visible on the forklift.</li><li>• Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.</li></ul>
	Portable electric tools	<ul style="list-style-type: none"><li>• Portable electric tools that are unsafe due to faulty plugs, damaged cords, or other reasons, shall be tagged (do not use) and removed from service.</li><li>• Portable electric tools and all cord and plug connected equipment shall be protected by a ground-fault circuit interrupter (GFCI) device.</li><li>• Electrical tools shall be inspected daily prior to use.</li></ul>

**Table 5-1**

**Activity Hazard Analysis  
Range 24 Upper, Parcel 80Q  
Fort McClellan, Calhoun County, Alabama**

(Page 4 of 13)

Activity	Potential Hazards	Recommended Controls
Initial UXO avoidance sweep and equipment staging (continued)	Extension cords	<ul style="list-style-type: none"> <li>• Extension cords that have faulty plugs, damaged insulation, or are unsafe in any way shall be removed from service.</li> <li>• Cords shall be protected from damage from sharp edges, projections, pinch points (doorways), and vehicular traffic.</li> <li>• Cords shall be suspended with a nonconductive support (rope, plastic ties, etc.).</li> <li>• Cords shall be designed for hard duty.</li> <li>• Cords shall be inspected daily.</li> </ul>
	Lightning strikes	<ul style="list-style-type: none"> <li>• Whenever possible, halt activities and take cover.</li> <li>• If outdoors, stay low to the ground.</li> <li>• Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground).</li> <li>• Seek shelter in a building if possible.</li> <li>• Stay away from windows.</li> <li>• If available, crouch under a group of trees instead of one.</li> <li>• Keep all body parts in contact with the ground as close as possible.</li> <li>• Remain 6 feet away from tree trunk if seeking shelter beneath tree(s).</li> <li>• If in a group, keep 6 feet of distance between people.</li> </ul>
	Thunderstorms, tornados	<ul style="list-style-type: none"> <li>• Listen to radio or TV announcements for pending weather information.</li> <li>• Cease field activities during thunderstorm or tornado warnings.</li> <li>• Seek shelter. Do not try to outrun a tornado.</li> </ul>
Surveying	Slip, trip, and fall hazards	<ul style="list-style-type: none"> <li>• Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe boots when working in the field.</li> <li>• Provide adequate lighting in all work areas.</li> <li>• Whenever possible, avoid routing cords and hoses across walking pathways.</li> <li>• Flag or cover inconspicuous holes to protect against falls.</li> <li>• Work areas will be kept clean and orderly.</li> <li>• Garbage and trash will be disposed of daily in approved refuse containers.</li> <li>• Tools and accessories will be properly maintained and stored.</li> <li>• Work areas and floors will be kept free of dirt, grease, and slippery materials.</li> </ul>

**Table 5-1**

**Activity Hazard Analysis  
Range 24 Upper, Parcel 80Q  
Fort McClellan, Calhoun County, Alabama**

(Page 5 of 13)

Activity	Potential Hazards	Recommended Controls
Surveying (continued)	Traffic accidents	<ul style="list-style-type: none"> <li>Place physical barrier (i.e., barricades, fencing) around work areas regularly occupied by pedestrians.</li> <li>If working adjacent to roadways, have workers wear fluorescent orange vests.</li> <li>Use warning signs or lights to alert oncoming traffic.</li> <li>Assign flag person(s) if necessary to direct local traffic.</li> <li>Set up temporary parking locations outside the immediate work area.</li> <li>Motor vehicle operators shall obey all posted traffic signs, signals, and speed limits.</li> <li>Pedestrians have the right-of-way.</li> <li>Wear seat belts when vehicles are in motion.</li> </ul>
	Wildlife hazards	<ul style="list-style-type: none"> <li>Workers should be cautious when driving through the site in order to avoid encounters with passing animals.</li> </ul>
	Biological hazards	<ul style="list-style-type: none"> <li>Walking through overgrown grass areas, watch for snakes (rattlesnakes, moccasins, copperheads).</li> </ul>
	Ticks	<ul style="list-style-type: none"> <li>Wear light colored clothing (can see ticks better).</li> <li>Mow vegetated and small brush areas.</li> <li>Wear insect repellent.</li> <li>Wear long sleeves and long pants.</li> <li>Visually check oneself promptly and frequently after exiting the work area.</li> </ul>
	Poison ivy/oak/sumac	<ul style="list-style-type: none"> <li>Avoid plant areas if possible.</li> <li>Wear long sleeves and long pants.</li> <li>Promptly wash clothing that has contacted poisonous plants.</li> <li>Wash affected areas immediately with soap and water.</li> </ul>
	UXO	<ul style="list-style-type: none"> <li>UXO avoidance monitoring will be conducted by a UXO specialist prior to beginning activities.</li> <li>If UXO is encountered, cease all activities, mark the location, and notify the site manager.</li> </ul>

**Table 5-1**

**Activity Hazard Analysis  
Range 24 Upper, Parcel 80Q  
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Activity	Potential Hazards	Recommended Controls
Groundwater Sampling	Cross-contamination and contact with potentially contaminated materials	<ul style="list-style-type: none"><li>• Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination.</li><li>• Avoid skin contact with water.</li><li>• Handle samples with care.</li><li>• Only essential personnel will be in the work area.</li><li>• Real-time air monitoring will take place before and during sampling activities.</li><li>• All personnel will follow good hygiene practices.</li><li>• Proper decontamination procedures will be followed.</li><li>• All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.</li></ul>
	Cut hazards	<ul style="list-style-type: none"><li>• Use care when handling glassware.</li><li>• Wear adequate hand protection.</li></ul>
	Hazard communication	<ul style="list-style-type: none"><li>• MSDSs shall be obtained for chemicals brought on site.</li><li>• Label all containers as to contents.</li></ul>
	Strains/sprains	<ul style="list-style-type: none"><li>• Use the proper tool for the job being performed.</li><li>• Get assistance if needed.</li><li>• Avoid twisting/turning while pulling on tools, moving equipment, etc.</li></ul>
	Spills/residual materials	<ul style="list-style-type: none"><li>• Absorbent material and containers will be kept available where leaks or spills may occur.</li></ul>
	Lighting	<ul style="list-style-type: none"><li>• Adequate lighting will be provided to ensure a safe working environment.</li></ul>
	Unattended worker	<ul style="list-style-type: none"><li>• Use "buddy system" - visual contact will be maintained with the sampling technician during sampling activities.</li></ul>

**Table 5-1**

**Activity Hazard Analysis  
Range 24 Upper, Parcel 80Q  
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Activity	Potential Hazards	Recommended Controls
Soil Boring and Surface/Subsurface Sampling	Cross-contamination and contact with potentially contaminated materials	<ul style="list-style-type: none"><li>• Stop immediately at any sign of obstruction.</li><li>• Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination.</li><li>• Only essential personnel will be in the work area.</li><li>• Real-time air monitoring will take place before and during sampling activities.</li><li>• All personnel will follow good hygiene practices.</li><li>• Proper decontamination procedures will be followed.</li><li>• All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.</li></ul>
	Cut hazards	<ul style="list-style-type: none"><li>• Use care when handling glassware.</li><li>• Wear adequate hand protection.</li></ul>
	Slip, trip, and fall hazards	<ul style="list-style-type: none"><li>• Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe/shank boots when working in the field.</li><li>• Whenever possible, avoid routing cords and hoses across walking pathways.</li><li>• Flag or cover inconspicuous holes to protect against falls.</li></ul>
	Bees, spiders, and snakes	<ul style="list-style-type: none"><li>• Workers shall inspect the work area carefully and avoid placing hands and feet into concealed areas.</li><li>• Evaluate need for sensitive workers to have prescribed antibiotic or medicine to combat onset of symptoms.</li></ul>
	Poison ivy/oak/sumac	<ul style="list-style-type: none"><li>• Avoid plant areas if possible.</li><li>• Wear long sleeves and long pants.</li><li>• Promptly wash clothing that has contacted poisonous plants.</li><li>• Wash affected areas immediately with soap and water.</li></ul>
	Cold stress	<ul style="list-style-type: none"><li>• Workers should wear insulated clothing when temperatures drop below 40°F.</li><li>• Drink warm beverages on breaks. Refrain from drinking caffeinated beverages.</li><li>• Remove wet clothing promptly.</li><li>• Take breaks in warm areas.</li><li>• Reduce work periods as necessary.</li><li>• Layer work clothing.</li></ul>



**Table 5-1**

**Activity Hazard Analysis  
Range 24 Upper, Parcel 80Q  
Fort McClellan, Calhoun County, Alabama**

(Page 8 of 13)

Activity	Potential Hazards	Recommended Controls
Soil Boring and Surface/Subsurface Sampling (continued)	Access/egress hazards	<ul style="list-style-type: none"><li>• Use qualified and trained bushhog operator.</li><li>• Keep employees out of the bushhog work area.</li><li>• Utilize good housekeeping practices.</li><li>• Keep aisleways, pathways, and work areas free of obstruction.</li><li>• Clean ice or snow off of walkways or work stations.</li><li>• Use appropriate footwear for the task assigned.</li></ul>
	Heat rash	<ul style="list-style-type: none"><li>• Keep the skin clean and dry.</li><li>• Change perspiration-soaked clothing, as necessary.</li><li>• Bathe at end of work shift or day.</li><li>• Apply powder to affected area.</li></ul>
	Heat cramps	<ul style="list-style-type: none"><li>• Drink plenty of cool fluids even when not thirsty.</li><li>• Provide cool fluid for work crews.</li><li>• Move victim to shaded, cool area.</li></ul>
	Heat exhaustion	<ul style="list-style-type: none"><li>• Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature).</li><li>• Set up work/rest periods.</li><li>• Use the buddy system.</li><li>• Allow workers time to acclimate.</li><li>• Have ice packs available for use.</li><li>• Take frequent breaks.</li></ul>
	Heat stroke	<ul style="list-style-type: none"><li>• Evaluate possibility of night work.</li><li>• Perform physiological monitoring on workers during breaks.</li><li>• Wear body cooling devices.</li></ul>

**Table 5-1**

**Activity Hazard Analysis  
Range 24 Upper, Parcel 80Q  
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Activity	Potential Hazards	Recommended Controls
Soil Boring and Surface/Subsurface Sampling (continued)	Lightning strikes	<ul style="list-style-type: none"> <li>• Whenever possible, halt activities and take cover.</li> <li>• If outdoors, stay low to the ground.</li> <li>• Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground).</li> <li>• Seek shelter in a building if possible.</li> <li>• Stay away from windows.</li> <li>• If available, crouch under a group of trees instead of one single tree.</li> <li>• Keep all body parts in contact with the ground as close as possible.</li> <li>• If in a group, keep 6 feet of distance between people.</li> </ul>
	UXO	<ul style="list-style-type: none"> <li>• UXO avoidance monitoring will be conducted by a UXO specialist prior to beginning activities.</li> <li>• If UXO is encountered, cease all activities, mark the location, and notify the site manager and UXO specialist.</li> </ul>
Moving and Shipping Collected Samples	Heavy lifting	<ul style="list-style-type: none"> <li>• Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.</li> </ul>
	Pinch points	<ul style="list-style-type: none"> <li>• Keep hands, fingers, and feet clear of moving/suspended materials and equipment.</li> <li>• Beware of contact points.</li> <li>• Stay alert at all times!</li> </ul>
	Cut hazards	<ul style="list-style-type: none"> <li>• Wear adequate hand protection. Use care when handling glassware.</li> </ul>
	Hazard communication	<ul style="list-style-type: none"> <li>• Label all containers as to contents and associated hazards.</li> </ul>
	Heavy lifting	<ul style="list-style-type: none"> <li>• Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.</li> </ul>

**Table 5-1**

**Activity Hazard Analysis  
Range 24 Upper, Parcel 80Q  
Fort McClellan, Calhoun County, Alabama**

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Activity	Potential Hazards	Recommended Controls
Material Storage	Flammable and combustible liquids	<ul style="list-style-type: none"><li>• Store in NO SMOKING AREA.</li><li>• Fire extinguisher readily available.</li><li>• Transfer only when properly grounded and bonded.</li></ul>
Disposal of Investigation-Derived Waste (IDW) (Forklift Operation)	Personnel injury, property damage, and/or equipment damage	<ul style="list-style-type: none"><li>• Use qualified and trained forklift operators.</li><li>• The operator shall not exceed the load capacity rating for the forklift.</li><li>• The load capacity shall be clearly visible on the forklift.</li><li>• Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.</li></ul>
	Cross-contamination and contact with potentially contaminated materials	<ul style="list-style-type: none"><li>• Stop immediately at any sign of obstruction.</li><li>• Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination.</li><li>• Only essential personnel will be in the work area.</li><li>• Real-time air monitoring will take place before and during sampling activities.</li><li>• All personnel will follow good hygiene practices.</li><li>• Proper decontamination procedures will be followed.</li><li>• All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.</li></ul>
	Cut hazards	<ul style="list-style-type: none"><li>• Use care when handling glassware.</li><li>• Wear adequate hand protection.</li></ul>
High-Pressure Water Jetting Operations	Heavy lifting	<ul style="list-style-type: none"><li>• Use proper lifting techniques.</li><li>• Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.</li></ul>
	Slip, trip, and fall hazards	<ul style="list-style-type: none"><li>• Good housekeeping shall be implemented.</li><li>• The work area shall be kept clean as feasible.</li><li>• Inspect the work area for slip, trip, and fall hazards.</li></ul>

**Table 5-1**

**Activity Hazard Analysis  
Range 24 Upper, Parcel 80Q  
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Activity	Potential Hazards	Recommended Controls
High-Pressure Water Jetting Operations (continued)	Fueling	<ul style="list-style-type: none"> <li>Only approved safety cans shall be used to store fuel.</li> <li>Do not refuel equipment while it is operating.</li> <li>Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.</li> </ul>
	Faulty or damaged equipment	<ul style="list-style-type: none"> <li>Equipment shall be inspected before being placed into service and at the beginning of each shift.</li> <li>Preventive maintenance procedures recommended by the manufacturer shall be followed.</li> <li>A lockout/tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.</li> </ul>
	High-pressure water	<ul style="list-style-type: none"> <li>Jetting gun operator must wear appropriate PPE including hard hat, impact-resistant safety glasses with side shields, water-resistant clothing, metatarsal guards for feet and legs, and hearing protection (if appropriate).</li> <li>One standby person shall be available within the vicinity of the pump during jetting operation.</li> <li>The work area shall be isolated and adequate barriers will be used to warn other site personnel.</li> </ul>
	Unqualified operators	<ul style="list-style-type: none"> <li>Only qualified and trained personnel are permitted to operate machinery and mechanized equipment associated with water jet cutting and cleaning.</li> </ul>
	Out of control equipment	<ul style="list-style-type: none"> <li>No machinery or equipment is permitted to run unattended.</li> <li>Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.</li> </ul>
	Noise	<ul style="list-style-type: none"> <li>Sound levels above 85 dBA mandates hearing protection by nearby site personnel.</li> </ul>
	Activation during repairs	<ul style="list-style-type: none"> <li>All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.</li> </ul>
	Pinch points	<ul style="list-style-type: none"> <li>Keep feet and hands clear of moving/suspended materials and equipment.</li> <li>Stay alert and clear of materials suspended .</li> </ul>
	Falling objects	<ul style="list-style-type: none"> <li>Hard hats are required by site personnel.</li> <li>Stay alert and clear of material suspended overhead.</li> </ul>
	Flying debris	<ul style="list-style-type: none"> <li>Impact-resistant safety glasses with side shields are required.</li> </ul>

**Table 5-1**

**Activity Hazard Analysis  
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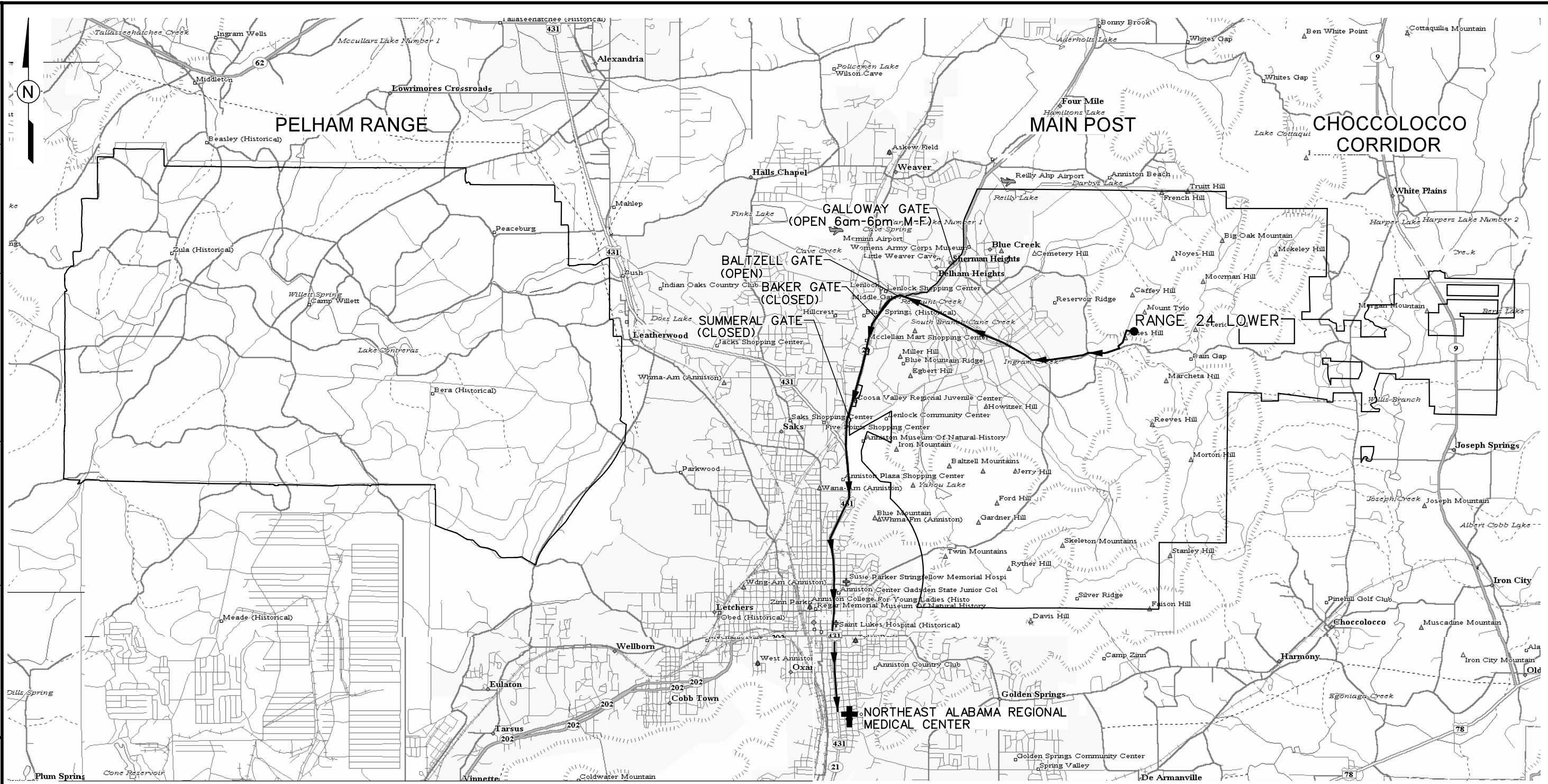
Activity	Potential Hazards	Recommended Controls
High-Pressure Water Jetting Operations (continued)	Contact with potentially contaminated materials	<ul style="list-style-type: none"> <li>All site personnel will wear the appropriate PPE.</li> </ul>
Drilling and Installation of Monitoring Wells	Overhead hazards	<ul style="list-style-type: none"> <li>Make sure no obstacles are within radius of boom. Always stay a safe distance from power lines.</li> </ul>
	Faulty or damaged equipment being utilized to perform work	<ul style="list-style-type: none"> <li>All machinery or mechanized equipment will be inspected by a competent mechanic and be certified to be in safe operating condition.</li> <li>Equipment will be inspected before being put to use and at the beginning of each shift.</li> <li>Faulty/unsafe equipment will be tagged and if possible locked out.</li> <li>Drill rigs shall be equipped with reverse signal alarm, backup warning lights, or the vehicle is backed up only when an observer signals it is safe to do so.</li> </ul>
	Uneven terrain, poor ground support, inadequate clearances, contact with utilities	<ul style="list-style-type: none"> <li>Inspections or determinations of road conditions and structures shall be made in advance to ensure that clearances and load capacities are safe for the passage or placing of any machinery or equipment.</li> <li>All mobile equipment and areas in which they are operated shall be adequately illuminated.</li> <li>Aboveground and belowground utilities will be located prior to staging equipment.</li> <li>Whenever the equipment is parked, the parking brake shall be set.</li> <li>Equipment parked on inclines will have the wheels chocked.</li> <li>Inspect brakes and tire pressure on drill rig before staging for work.</li> </ul>
	Inexperienced operator	<ul style="list-style-type: none"> <li>Machinery and mechanized equipment shall be operated only by designated personnel.</li> <li>Operators shall inform their supervisor(s) of any prescribed medication that they are taking that would impair their judgment.</li> </ul>
	Jacks/outriggers	<ul style="list-style-type: none"> <li>Ensure proper footing and cribbing.</li> </ul>
	Falling objects	<ul style="list-style-type: none"> <li>Remove unsecured tools and materials before raising or lowering the derrick.</li> <li>Stay alert and clear of materials suspended overhead.</li> </ul>
	Pinch points	<ul style="list-style-type: none"> <li>Keep feet and hands clear of moving/suspended materials and equipment.</li> <li>Stay alert at all times!</li> </ul>

**Table 5-1**

**Activity Hazard Analysis  
Range 24 Upper, Parcel 80Q  
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Activity	Potential Hazards	Recommended Controls
Drilling and Installation of Monitoring Wells (continued)	Fire	<ul style="list-style-type: none"> <li>• Mechanized equipment shall be shut down prior to and during fueling operations.</li> <li>• Have fire extinguishers inspected and readily available.</li> </ul>
	Fall hazards	<ul style="list-style-type: none"> <li>• Personnel are not allowed to work off of machinery or use them as ladders.</li> <li>• Use fall protection when working above 6 feet.</li> </ul>
	Contact with rotating or reciprocating machine parts	<ul style="list-style-type: none"> <li>• Use machine guards; use long-handled shovels to remove auger cuttings.</li> <li>• Safe lockout procedures for maintenance work.</li> </ul>
	Heavy lifting	<ul style="list-style-type: none"> <li>• Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.</li> </ul>
	Slip, trip, and fall hazards	<ul style="list-style-type: none"> <li>• Practice good housekeeping, keep work area picked up and clean as feasible.</li> <li>• Continually inspect the work area for slip, trip, and fall hazards.</li> </ul>
	Contact with potentially contaminated materials	<ul style="list-style-type: none"> <li>• Real-time air monitoring will take place. If necessary, proper personal protective clothing and equipment will be utilized.</li> <li>• Stop immediately at any sign of obstruction.</li> <li>• Do not breathe air surrounding boring unless necessary.</li> <li>• Upgrade to respirator if necessary.</li> <li>• Avoid skin contact with soil cuttings. Wear gloves.</li> <li>• Stay clear of moving parts of drill rig.</li> </ul>
	Drum handling	<ul style="list-style-type: none"> <li>• Be careful not to breathe air from around open drum any more than necessary. Monitor with photoionization detector/flame ionization detector (PID/FID) equipment and upgrade to respirator if necessary.</li> <li>• When filling a drum (with either soil or water), be careful not to make contact with the contained waste. Wear appropriate gloves. Make sure lid or bung of drum is secure.</li> <li>• If moving a drum unassisted, be sure to leverage properly, use proper lifting techniques, and wear safety glasses and steel-toed boots.</li> <li>• When using a drum dolly, make sure straps and lid catch are securely attached. Leverage properly when tilting drum. Be sure toes stay away from drum.</li> </ul>
	UXO	<ul style="list-style-type: none"> <li>• UXO avoidance monitoring will be conducted by a UXO specialist prior to beginning activities.</li> <li>• If UXO is encountered, cease all activities, mark the location, and notify the site manager and UXO specialist immediately.</li> </ul>



LEGEND:

- ROUTE TO NORTHEAST ALABAMA REGIONAL MEDICAL CENTER
- U.S. HIGHWAY
- HOSPITALS
- INVESTIGATION SITE

DRIVING DIRECTIONS FROM BALTZELL GATE ROAD TO THE NORTHEAST ALABAMA MEDICAL CENTER

- LEAVING FORT MCCLELLAN ON BALTZELL GATE ROAD, TURN LEFT (SOUTH) ONTO AL HWY 21
- GO ~ 2.5 MILES WHERE AL HWY 21 MERGES WITH U.S. HWY 431 AND CONTINUE SOUTH
- CONTINUE SOUTH ON AL21/US431 FOR ~ 2.7 MILES
- TURN LEFT ONTO EAST 10th STREET
- GO ~ 0.2 MILE TO MEDICAL CENTER ON RIGHT
- NORTHEAST ALABAMA REGIONAL MEDICAL CENTER, 400 EAST 10 TH STREET
- PHONE NUMBER : (256) 235-5121

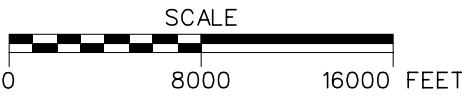


FIGURE 5-1  
HOSPITAL EMERGENCY ROUTE

U. S. ARMY CORPS OF ENGINEERS  
MOBILE DISTRICT  
FORT McCLELLAN  
CALHOUN COUNTY, ALABAMA  
Contract No. DACA21-96-D-0018

